What is claimed is:

1. A system for detecting an analyte in a fluid comprising:

a light source;

a sensor, the sensor comprising a supporting member configured to support one or more sensing elements;

at least one sensing element, wherein the sensing element has a predefined shape, and wherein the sensing element is configured to produce a signal when the sensing element interacts with the analyte during use; and

a detector, the detector being configured to detect the signal produced by the interaction of the analyte with the sensing element during use;

wherein the light source and detector are positioned such that light passes from the light source, to the sensing element, and onto the detector during use, and wherein the identity of the analyte is determined by the detection of the signal and the shape of the sensing element during use.

2. The system of claim 1 wherein the light source is a white light source.

3. The system of claim 1 wherein the light source is a light emitting diode.

4. The system of claim 1 wherein the detector is a charge-coupled device.

5. The system of claim 1, further comprising a filter positioned between the sensor and the detector.

6. The system of claim 1, further comprising a filter positioned between the sensor and the detector, wherein the filter is configured to remove an excitation wavelength during use.

7. The system of claim 1 wherein the supporting member comprises a polymer.

8. The system of claim 1 wherein the sensing element comprises a polymer.

9. The system of claim 1 wherein the sensing element is positioned at the surface of the supporting member.

10. The system of claim 1 wherein the sensing element comprises a polyethylene glycol hydrogel.

11. The system of claim 1 wherein the sensing element comprises a receptor, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use.

12. The system of claim 1, wherein the support member comprises a polymer, and wherein the sensing element is at least partially embedded within the support member.

13. The system of claim 1, wherein the support member comprises a polymer and wherein the sensing element comprises a polymer.

14. The system of claim 1, wherein the support member comprises a polymer, and wherein the sensing element is embedded in the polymer such that the sensing element extends from a bottom surface of the support member through the support member to the top surface of the support member.

15. The system of claim 1, wherein the support member comprises a substantially

rigid material, and wherein the sensing elements are disposed on a surface of the support member.

16. The system of claim 1, wherein the support member comprises at least on well, and wherein the sensing element is disposed in the well.

17. The system of claim 1, wherein the sensing element comprises a receptor coupled to a polymeric body.

18. The system of claim 1, wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a non-spherical shape.

19. The system of claim 1, wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer.

20. The system of claim 1, wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate.

21. The system of claim 1, wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is coupled to an outer surface of the polymeric body.

22. The system of claim 1, wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is at least partially encapsulated within the polymeric body.

23. The system of claim 1, wherein the sensing element comprises a receptor

coupled to a polymeric body, and wherein the receptor comprises a nucleic acid.

24. A system for detecting a first and a second analyte in a fluid comprising:

a light source;

a sensor array, the sensor array comprising a supporting member configured to hold sensing elements, wherein a first portion of the sensing elements are configured to produce a signal in the presence of the first analyte and wherein a second portion of the sensing elements are configured to produce a signal in the presence of the second analyte, and wherein the first and second portions of the sensing elements have predetermined shapes, and wherein the shape of the first portion of sensing elements is different from the shape of the second portion of sensing elements;

a detector configured to detect the signal produced by the interaction of the analyte with the particle during use;

wherein the light source and detector are positioned such that light passes from the light source, to the particle, and onto the detector during use.

25. A sensor array for detecting an analyte in a fluid comprising:

a supporting member; and

a plurality of sensing elements coupled to the supporting member, wherein a first portion of the sensing elements are configured to produce a signal in the presence of a first analyte and wherein a second portion of the sensing elements are configured to produce a signal in the presence of a second analyte, and wherein the first and second portions of the sensing elements have predetermined shapes, and wherein the shape of the first portion of sensing elements is different from the shape of the second

portion of sensing elements.

26. The sensor array of claim 25 wherein the supporting member comprises a polymer.

27. The sensor array of claim 25 wherein the sensing element comprises a polymer.

28. The sensor array of claim 25 wherein the sensing element is positioned at the surface of the supporting member.

29. The sensor array of claim 25 wherein the sensing element comprises a polyethylene glycol hydrogel.

30. The sensor array of claim 25 wherein the sensing element comprises a receptor, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use.

31. The sensor array of claim 25 wherein the support member comprises a polymer, and wherein the sensing element is at least partially embedded within the support member.

32. The sensor array of claim 25 wherein the support member comprises a polymer and wherein the sensing element comprises a polymer.

33. The sensor array of claim 25 wherein the support member comprises a polymer, and wherein the sensing element is embedded in the polymer such that the sensing element extends from a bottom surface of the support member through the support member to the top surface of the support member.

34. The sensor array of claim 25 wherein the support member comprises a substantially rigid material, and wherein the sensing elements are disposed on a surface of the support member.

35. The sensor array of claim 25 wherein the support member comprises at least on well, and wherein the sensing element is disposed in the well.

36. The sensor array of claim 25 wherein the sensing element comprises a receptor coupled to a polymeric body.

37. The sensor array of claim 25 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a non-spherical shape.

38. The sensor array of claim 25 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer.

39. The sensor array of claim 25 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate.

40. The sensor array of claim 25 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is coupled to an outer surface of the polymeric body.

41. The sensor array of claim 25 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is at least partially encapsulated within the polymeric body.

42. The sensor array of claim 25 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor comprises a nucleic acid.

43. A sensing element for detecting an analyte in a fluid comprising:

a receptor coupled to a polymeric body, wherein the polymeric body has a predetermined shape;

wherein the body is configured to produce a signal in the presence of an analyte, and wherein the shape of the body facilitates identification of the analyte.

44. The sensor array of claim 43 wherein the polymeric body comprises a non-spherical shape.

45. The sensor array of claim 43, wherein the polymeric body comprises a polyethylene glycol polymer.

46. The sensor array of claim 43, wherein the polymeric body comprises a polyethylene glycol diacrylate.

47. The sensor array of claim 43, wherein the receptor is coupled to an outer surface of the polymeric body.

48. The sensor array of claim 43, wherein the receptor is at least partially

encapsulated within the polymeric body.

49. The sensor array of claim 43, wherein the receptor comprises a nucleic acid.

50. A method for forming a sensor array configured to detect an analyte in a fluid, comprising:

forming a sensing element having a predetermined shape;

placing the sensing element in a liquid composition; and

curing the liquid composition to form a supporting member, wherein the sensing element is at least partially embedded within the cured liquid composition.

51. The method of claim 50, wherein forming a sensing element comprises polymerizing a monomer composition.

52. The method of claim 50, wherein forming a sensing element comprises using lithography polymerization.

53. The method of claim 50, wherein forming a sensing element comprises using projection lithography polymerization.

54. The method of claim 50, wherein forming a sensing element comprises using imprint lithography polymerization.

55. The method of claim 50, wherein forming a sensing element comprises using micromolding.

56. The method of claim 50, wherein placing the sensing element in a liquid composition comprises placing the sensing elements in an ordered orientation.

57. The method of claim 50, wherein placing the sensing element in a liquid composition comprises placing the sensing elements in a random orientation.

58. The method of claim 50, wherein placing the sensing element in a liquid composition comprises placing the sensing elements at the surface of the liquid composition.

59. The method of claim 50, wherein placing the sensing element in a liquid composition comprises placing the sensing elements at the surface of the liquid composition, wherein the sensing elements and the liquid composition have different densities.

60. The method of claim 50, wherein the sensing element has a density that is greater than a density of the liquid composition.

61. The method of claim 50, wherein the sensing element has a density that is less than a density of the liquid composition.

62. The method of claim 50, further comprising placing the liquid composition in a mold, wherein the mold has a depth that is greater than a height of the sensing elements.

63. The method of claim 50, further comprising placing the liquid composition in a mold, wherein the mold has a depth that is greater than a height of the sensing elements, and wherein the mold has a height less than twice the height of the sensing elements.

64. The method of claim 50, further comprises:

placing the liquid composition in a mold, wherein the mold has a depth that is greater than a height of the sensing elements, and

compressing the mixture of the liquid composition and the sensing elements prior to curing the liquid composition.

65. The method of claim 50, further comprises:

placing the liquid composition in a mold, wherein the mold has a depth that is greater than a height of the sensing elements,

compressing the mixture of the liquid composition and the sensing elements;

and placing a support in contact with a portion of the liquid composition prior to curing the liquid composition, wherein the cured composition at least partially adheres to the support after curing.

66. The method of claim 50 wherein the sensing element comprises a polymer.

67. The method of claim 50 wherein the sensing element comprises a polyethylene glycol hydrogel.

68. The method of claim 50 wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use.

69. The method of claim 50 wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a non-spherical shape.

70. The method of claim 50 wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer.

71. The method of claim 50 wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate.

72. The method of claim 50 wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor is coupled to an outer surface of the polymeric body.

73. The method of claim 50 wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor is at least partially encapsulated within the polymeric body.

74. The method of claim 50 wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor comprises a nucleic acid.

75. A method of forming a sensor element comprising:

placing a liquid composition in a mold;

placing a substrate in contact with a portion of the liquid composition;

placing a mask in optical alignment with the liquid composition, wherein the mask comprises a plurality of openings;

irradiating the liquid composition by directing activating light through the mask, such that a portion of the activating light contacts a portion of the liquid composition, wherein the portion of the liquid composition that is contacted by the activating light is substantially cured; and

removing the uncured portion of the liquid composition.

76. A method of sensing an analyte in a fluid comprising:

passing a fluid over a sensor array, the sensor array comprising at least one sensing element coupled to a supporting member, the sensing element having a predetermined shape;

monitoring a spectroscopic change of the sensing element as the fluid is passed over the sensor array, wherein the spectroscopic change is caused by the interaction of the analyte with the sensing element; and

determining the shape of the sensing element.

77. A system for detecting an analyte in a fluid comprising:

a light source;

a sensor, the sensor comprising a supporting member configured to support one or more sensing elements;

at least one sensing element, wherein the sensing element has a predefined shape, and wherein the sensing element is configured to produce a signal when the sensing element interacts with the analyte during use; and

a detector, the detector being configured to detect the signal produced by the interaction of the analyte with the sensing element during use;

wherein the light source and detector are positioned such that light passes

from the light source, to the sensing element, and onto the detector during use, and wherein the identity of the analyte is determined by the detection of the signal and the shape of the sensing element during use.

78. The method of claim 77 wherein the detector is a charge-coupled device.

79. The method of claim 77 wherein the supporting member comprises a polymer.

80. The method of claim 77 wherein the sensing element comprises a polymer.

81. The method of claim 77 wherein the sensing element is positioned at the surface of the supporting member.

82. The method of claim 77 wherein the sensing element comprises a polyethylene glycol hydrogel.

83. The method of claim 77 wherein the sensing element comprises a receptor, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use.

84. The method of claim 77 wherein the support member comprises a polymer, and wherein the sensing element is at least partially embedded within the support member.

85. The method of claim 77 wherein the support member comprises a polymer and wherein the sensing element comprises a polymer.

86. The method of claim 77 wherein the support member comprises a polymer, and wherein the sensing element is embedded in the polymer such that the sensing element extends from a bottom surface of the support member through the support

member to the top surface of the support member.

87. The method of claim 77 wherein the support member comprises a substantially rigid material, and wherein the sensing elements are disposed on a surface of the support member.

88. The method of claim 77 wherein the support member comprises at least on well, and wherein the sensing element is disposed in the well.

89. The method of claim 77 wherein the sensing element comprises a receptor coupled to a polymeric body.

90. The method of claim 77 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a non-spherical shape.

91. The method of claim 77 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer.

92. The method of claim 77 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate.

93. The method of claim 77 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is coupled to an outer surface of the polymeric body.

94. The method of claim 77 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is at least partially

encapsulated within the polymeric body.

95. The method of claim 77 wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor comprises a nucleic acid.

96. A system for detecting an analyte in a fluid comprising:

a light source;

a sensor, the sensor comprising a supporting member configured to support one or more sensing elements;

at least one sensing element having a predetermined shape coupled to the supporting member; and

a detector, the detector being configured to detect the signal produced by the interaction of the analyte with the sensing element during use.

97. A sensor array for detecting an analyte in a fluid comprising:

a supporting member; and

a plurality of sensing elements coupled to the supporting member, wherein the sensing elements comprise a plurality of different shapes.